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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 23552 | 7590 | 10/27/2006 | | EXAMINER |
| MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903 | | | CHANG, AUDREY Y | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2872 | |

DATE MAILED: 10/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------------------|----------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/634,195 | MARTIN, DONALD LEWIS | |
| | Examiner Audrey Y. Chang | Art Unit 2872 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 2-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 2-37 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 08/04/2003.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

Remark

- This Office Action is in response to applicant's preliminary amendments filed on August 4, 2003, that have been entered into the file.
- The first preliminary amendment has canceled claim 1, has amended claims 2, 15, 25-28 and has added claims 35-37. The second preliminary amendment has amended claims 2, 4-22, 24-25, 28-29, 31, 33 and 36-37.
- Claims 2-37 remain pending in this application.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claims 1-9, 23, 26, 28, 31-34 and 37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.** The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1-9 and 31-34 recite a three-dimensional imagery however the claims fail to disclose any elements or criterions that make the imagery "three dimensional".

It is not clear how could the "succession of images initiated at predetermined intervals in time and means to provide ... a set of plural pairs of visually distinct angles of view" as recited in claim 1. If the images provided in time sequence, then only one perspective of view will be provided, not a pair or a plural pairs of it. It is also not clear how could the "set of plural pairs of visually distinct angles of view"

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be ever be provided from a single image. The image has first to have certain critical feature such that comprises components representing different perspective of views.

Claim 26 is a single means claim that does not appear in combination with any other element of means that is subject to undue breadth rejection. A single means claim covers every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification only discloses at most those means known by the applicant. (Please see MPEP 2164.08(a)).

With regard to claims 23, 28, and 37, the specification also **fails** to teach how could the optical grid device having variable polarization elements that the elements are altered between *opaque* and *transmissive* condition. It is known in the art that the polarization elements having particular polarization state (which always being transmissive state) imparts such polarization state on the incident light beam but will never impart *opaque* condition to the incident light beam. In order to provide “opaque” or “transmissive condition” the incident light needs to have polarization that either orthogonal to the polarization of the optical grid device or parallel to it.

With regard to claims 28 and 37, the specification fails to teach what materials are considered to be “analogous in properties and functions to liquid crystal materials”.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 2-37 are rejected under 35 U.S.C. 112, second paragraph,** as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim(s) are *extremely narrative* in form and replete with indefinite and *functional* or *operational* language. The *structure*, which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete

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operative device. The claim(s) must be in one sentence form only. Note the format of the claims in the patent(s) cited.

The phrase “three dimensional imagery” recited in various claims are confusing since it is not clear if this imagery means a “display device” or just an “image”? It is also not clear if the phrase “an image display” means the image displayed or what?

The phrase “in time” recited in **claims 2, 10, 24, 29, 31, and 33** is confusing and indefinite since it is not clear what does this phrase really means and refers to what? Does it means that left eye perspective image and right eye perspective image are presenting in time alternating sequence? Or does this mean that different elements of the same left eye and right eye perspective images are presented in time? Or does this means different scenery of the left and right eye perspective image are provided in time sequence? **Clarifications are required.**

How can the left and right eyes capable of “scanning” images?

The phrase “at predetermined intervals” recited in claims 2, 10, 24, 25, 29, 31, and 33 are indefinite since it is not clear what intervals are referred here. It is not clear if the intervals are referred to time intervals or spatial intervals. **Clarification is required.**

The claim language contains a lot of *indefinite* and *descriptive* terms such as “or so as to”, “appear”, “any”, “but always so as to”, “analogous”, etc. in various claims that are confusing and indefinite.

The phrase “said pair of angles of view have different common centers to provide a variety of different comparable focal points or so as to contain vertical displacement between angles of view” recited in **claim 5** is completely confusing and non-sensible. Where do these focal points come from? There is no elements or means claimed in the claims that will have focal points? Also what is being “vertically displaced” here? The scopes of the claims are completely not clear.

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The term “transmissive/reflective” recited in claim 10 and its respective dependent claims are confusing. It is not clear if the zone is transmissive or reflective? Also it is not clear how does this apparatus work when the grid has reflective zones.

What is considered to be the phrase “include a progressive or sequential image scanning function horizontally across said optical grid means simultaneously with a progressive or sequential three dimensional tunneling functions” as recited in **claim 11**? Firstly, how could the control signal only for controlling the optical grid is capable of “image scanning function”? What is considered to be progressive scanning and what is considered to be sequential scanning? What is considered to be “three dimensional image tunneling function”? Claim 11 is completely not making any sense.

The phrase “and/or” recited in claims is indefinite since the alternative phrases making the scopes of the claims unclear.

What does it means by the visibly distinct angles of view being “complementary about a center points?

Claim 21 is completely confusing and indefinite. It is really not clear what is being sought for patent here.

The phrase “may be altered within each of said intervals so that the grid device take up plural discernibly different viewing positions of the image display” recited in claim 22 is confusing and indefinite. How could the grid device **takes up plural ... viewing positions**?

The phrase “polarizing materials” recited in claims 28 and 37 is confusing and indefinite since the it is not clear what is considered to be “polarizing material”? There is no such material exist in nature.

The phrase “frames, representations, or machine readable code” recited in claim 29 is indefinite since the elements in the alternative phrase are not equivalent to each other to define a definite scope for the claim.

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Claim 25 is confusing and indefinite since claim 25 claims only an optical grid device, yet the body of the claim it is associated with certain imagery display means which make the scope of the claim unclear. It is not clear if the imagery display means is or is not part of the “optical grid device”? If it is part of the grid device, please specify how could this be? It is also not clear if the scope of the claim is an “optical grid device” or not?

With regard to claim 27, it is not clear how does the “three dimensional imagery optical grid” relate to the “optical grid device” recited in its based claim?

Claim 29 is confusing and indefinite since claim 29 claims only a “medium in which stored image representation” yet it is also associated with “imagery display” and “optical grid means” that it is completely not clear if the imagery display and the optical grid means are or are not parts of the “medium”? If they are please specify how could it be? If not, then what exactly is the scope of the claims? The “ability” for doing certain thing is considered to be intended uses.

What is considered to be “three dimensional imagery signal” as recited in claim 31? If one can have three-dimensional signals, then there is no need for any other means to provide three-dimensional views. **There is no such thing as three dimensional imagery signal.**

The applicant is respectfully requested to clarify ALL of the indefiniteness and discrepancies of the claims to make the claims in comply with the requirements of 35 USC 112, first and second paragraphs. The examiner can only point out a few of the discrepancies.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 2-8, 10-18, 20-23, and 24-37 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Imai (PN. 5,825,541).**

Imai teaches a stereoscopic display system, serves as the *three dimensional imagery* that is comprised of:

- (a) a *display* (1) comprising CRT having succession of left and right *images in time sequence*,
- (b) *an electronic shutter array* (7) and *parallax barrier* (8) together serve as the *optical grid* means for providing, within each sequence of the left or right image frame, a set of plural pairs of visual distinct angles of view that can be scanned by left and right eyes respectively, (please see Figure 4A and 4B), where the two eye positions account for the different *viewing positions*, (claim 7), and
- (c) means for providing *control signals* to control the switching ON/OFF of the shutter regions (70, 70') of the shutter (7) to have progressive movement of transmissive and opaque zone across the shutter array in order for the shutter array and the parallax barrier to provide the plural pairs of visual distinct angles of view, (please column 9).

The number of pairs of visibly distinct angles of view is an even number and the pairs comprise angles of view that have common center and have different common centers.

The sequential left and right images are displayed on the display in a frame rate that fast enough to provide stereoscopic illusion to the observer.

The display (1) is comprised of a CRT or a liquid crystal display that are commonly used in cinematograph, video or projection system.

The angles of view for left eye and the angles of view for right eye are excluded for right eye and left eye respectively.

The shutter array (7) is comprised of liquid crystal shutter elements (70, 70') having electro-optic panel structure, (please see column 9).

With regard to claims 23, 28 and 37, Imai teaches that the shutter array and the parallax barrier may be replaced by a pair of *rotary polarization switch array* (22 or 23) and a *polarizer* (24 or 25), (please see Figures 7A and 7B), such that the rotary polarization switch array and the polarizer may be controlled and switched to form elements of opaque and transmissive conditions across the panel so that the plural pairs of distinct angles of view may be provided, (please see column 15). With regard to claims 35-36, the optical grid may include polarizing elements having angle of polarization that vary across the device, (please see Figure 6A and 6B).

With regard to claims 25-27, the optical grid means, either comprises shutter array (7) and parallax barrier (8) or rotary polarization array (22 or 23) and polarizer (24 or 25) having *vertical strip elements* (with regard to claim 36) that may be controlled by the signal to alter the condition of the element between transmissive or opaque state. The shutter array or the rotary polarization array is an electro-optic panel having liquid crystal material within.

With regard to claim 29, Imai teaches that the CRT display may store image frames. With regard to claim 30, the images intended to be display stereoscopically are transmitted signal for broadcasting.

With regard to claims 33-34, the synchronism between the image displayed in sequence and the switching of the optical grid is implicitly included in the Imai display in order to achieve the stereoscopic display mode.

This reference has therefore anticipated the claims.

7. Claims 2-8, 10-18, 20-22, 24-34 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Isono et al (PN. 5,315,377).

Isono et al teaches a three dimensional image display serves as the three dimensional imagery that includes:

- (a) a *display* (46, Figure 2) comprising liquid crystal display having succession of left and right *images* in *time sequence*,
- (b) an *electronic barrier display panel* (28) serve as the *optical grid* means for providing, within each sequence of the left or right image frame, a set of plural pairs of visual distinct angles of view that can be scanned by left and right eyes respectively, (please see Figure 2), where the two eye positions account for the different *viewing positions*, (claim 7), and
- (c) means (controller 22 Figure 1) for providing *control signals* to control the switching ON/OFF of the shutter regions of the liquid crystal barrier display panel (28) to provide progressive movement of transmissive and opaque zone across the barrier display panel in order for the barrier display panel to provide the plural pairs of visual distinct angles of view, (please column 9).

The number of pairs of visibly distinct angles of view is an even number and the pairs comprise angles of view that have common center and have different common centers.

The sequential left and right images are displayed on the display in a frame rate that fast enough to provide stereoscopic illusion to the observer without flicker.

The display (46) is comprised of a liquid crystal display that is commonly used in cinematograph, video or projection system.

The angles of view for left eye and the angles of view for right eye are excluded for right eye and left eye respectively.

The electronic barrier display panel is comprised of liquid crystal panel (28) having electro-optic panel structure, and including liquid crystal material.

With regard to claim 24, Isono et al teaches that observer (400, Figure 2) views three dimensional image from the display via the barrier display panel.

With regard to claims 25-28 and 37, Isono et al teaches that the electronic barrier display panel (28, Figure 2) serves as the optical grid device that has multiple variable elements controllable for altering the elements between opaque and transmissive condition in response to the controller (22). The controller controls the barrier panel that causes the transmissive and opaque zone progressively moved, (please see movement arrow 402 in Figure 2, Figure 4 and Figures 6 for different arrangement of the opaque and transmissive zones). The driving of the barrier display panel is synchronized with the image displayed on the display panel in order to achieve the stereoscopic viewing condition, (please see column 6, lines 52-60). The barrier display panel is liquid crystal panel.

With regard to claims 29-30, the image display panel (46) serves as the image medium, which implicitly include the code for generating control signal for the controller in order to achieve the synchronization between the image display and the barrier control.

With regard to claims 31-34, the method for displaying three-dimensional imagery is implicitly included in the apparatus as disclosed by Isono et al.

This reference has therefore anticipated the claims.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. Claims 9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Imai.

The stereoscopic display system taught by Imai as described for claims 1 and 10 above has met all the limitations of the claims with the exception that it does not teach explicitly that each of the distinct angles of view does not exceed 15 degrees. Imai does teach that the angle for the distinct angular view is small, (please see Figures 4A and 4B). However such degree limitation is either inherently met by the disclosure or an obvious matters of design choice to one skilled in the art for the benefit of providing desired continuation of the angular view to the observer to preserve the quality of image being viewed.

10. Claims 9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Isono et al.

The three dimensional image display system taught by Isono et al as described for claims 1 and 10 above has met all the limitations of the claims with the exception that it does not teach explicitly that each of the distinct angles of view does not exceed 15 degrees. Isono et al does teach that the angle for the distinct angular view is small, (please see Figures 2 and 4). However such degree limitation is either inherently met by the disclosure or an obvious matters of design choice to one skilled in the art for the benefit of providing desired continuation of the angular view to the observer to preserve the quality of image being viewed.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A. Chang, Ph.D.

*Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872*

